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Define:

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## Stedman's Medical Dictionary 27th Edition

### leukocyte (loo'ko-sit)

A type of cell formed in the myelopoietic, lymphoid, and reticular portions of the reticuloendothelial system in various parts of the body, and normally present in those sites and in the circulating blood (rarely in other tissues). Under various abnormal conditions, the total numbers or proportions, or both, may be characteristically increased, decreased, or not altered, and they may be present in other tissues and organs. Leukocytes represent three lines of development from primitive elements: myeloid, lymphoid, and monocytic series. On the basis of features observed with various methods of staining with polychromatic dyes (e.g., Wright stain), cells of the myeloid series are frequently termed granular l., or granulocytes; cells of the lymphoid and monocytic series also have granules in the cytoplasm but, owing to their tiny, inconspicuous size and different properties (frequently not clearly visualized with routine methods), lymphocytes and monocytes are sometimes termed nongranular or agranular l.. Granulocytes are commonly known as polymorphonuclear l. (also polynuclear or multinuclear l.), inasmuch as the mature nucleus is divided into two to five rounded or ovoid lobes that are connected with thin strands or small bands of chromatin; they consist of three distinct types: neutrophils, eosinophils, and basophils, named on the basis of the staining reactions of the cytoplasmic granules. Cells of the lymphocytic series occur as two, somewhat arbitrary, normal varieties: small and large lymphocytes; the former represent the ordinary forms and are conspicuously more numerous in the circulating blood and normal lymphoid tissue; the latter may be found in normal circulating blood, but are more easily observed in lymphoid tissue. The small lymphocytes have nuclei that are deeply or densely stained (the chromatin is coarse and bulky) and almost fill the cells, with only a slight rim of cytoplasm around the nuclei; the large lymphocytes have nuclei that are approximately the same size as, or

only slightly larger than, those of the small forms, but there is a broader, easily visualized band of cytoplasm around the nuclei. Cells of the monocytic series are usually larger than the other l., and are characterized by a relatively abundant, slightly opaque, pale blue or blue-gray cytoplasm that contains myriad extremely fine reddish-blue granules. Monocytes are usually indented, reniform, or shaped similarly to a horseshoe, but are sometimes rounded or ovoid; their nuclei are usually large and centrally placed and, even when eccentrically located, are completely surrounded by at least a small band of cytoplasm. SYN: white blood cell, [leuko- + G. kytos, cell] **acidophilic l.** SYN: eosinophilic l.

**agranular l.** SYN: nongranular l. **basophilic l.** a polymorphonuclear l. characterized by many large, coarse, metachromatic granules (dark purple or blue-black when treated with Wright or similar stains) that usually fill the cytoplasm and may almost mask the nucleus; these l. are unique in that they usually do not occur in increased numbers as the result of acute infectious disease, and their phagocytic qualities are probably not significant; the granules, which contain heparin and histamine, may degranulate in response to hypersensitivity reactions and can be of significance in general inflammation. SYN: basocyte, basophilocyte.

**mast l.**, **cystinotic l.** a l. having an enhanced content of cystine, found in patients with disorders characterized by the storage of cystine; within the l., the cystine, largely in noncrystalline form, is associated with dense lysosomal particles. **endothelial l.** obsolete term for a monocyte, a type of l. thought to be derived from reticuloendothelial tissue. **eosinophilic l.** a polymorphonuclear l. characterized by many large or prominent, refractile, cytoplasmic granules that are fairly uniform in size and bright yellow-red or orange when treated with Wright or similar stains; the nuclei are usually larger than those of neutrophils, do not stain as deeply, and characteristically have two lobes (a third lobe is sometimes interposed on the connecting strand of chromatin); these l. are motile phagocytes with distinctive antiparasitic functions. SYN: acidophilic l., eosinocyte, eosinophil, eosinophile,

oxyphil (2), oxyphile, oxyphilic l. **filament**  
**polymorphonuclear l.** any mature polymorphonuclear l., especially a neutrophilic l., in which the lobes of the nucleus are interconnected with a thin strand or filament of chromatin. **globular l.** a type of wandering cell with a small, round nucleus found in the epithelium and lamina propria of the intestinal mucosa of many animals; its cytoplasm contains large eosinophilic globules or droplets. **granular l.** any one of the polymorphonuclear l., especially a neutrophilic l. SEE ALSO: granulocyte,

basophilic *l.*, eosinophilic *l.*, **hyaline *l.*** obsolete term for a monocyte, and for a mononuclear macrophage in various lesions. **mast *l.*** SYN: basophilic *l.* **motile *l.*** any *l.* that manifests active ameboid movement, especially a mature granulocytic *l.* (eosinophils are less motile than neutrophils or basophils); monocytes manifest a slow, but persistent, wavelike movement. **multinuclear *l.*** SYN: polymorphonuclear *l.* **neutrophilic *l.*** a neutrophilic granulocyte, the most frequent of the polymorphonuclear *l.*, and also the most active phagocyte among the various types of white blood cells; when treated with Wright stain (or similar preparations), the fairly abundant cytoplasm is faintly pink, and numerous tiny, slightly refractile, relatively bright pink or violet-pink, diffusely scattered granules are recognizable in the cytoplasm; the deeply stained blue or purple-blue nucleus is sharply distinguished from the cytoplasm and is distinctly lobated, with thin strands of chromatin connecting the three to five lobes. **nonfilament polymorphonuclear *l.*** a neutrophil, basophil, or eosinophil that is not completely matured, i.e., the lobes of the nuclei remain connected with bands of chromatin, in contrast to the thin strands observed in mature cells. **nongranular *l.*** a general, nonspecific term frequently used with reference to lymphocytes, monocytes, and plasma cells; although the cytoplasm of a lymphocyte or monocyte contains tiny granules, it is "nongranular" in comparison with that of a neutrophil, basophil, or eosinophil. SEE ALSO: leukocyte. SYN: agranular *l.* **nonmotile *l.*** a term sometimes used with reference to lymphocytes, monocytes, and plasma cells; although such forms actually have some degree of motility, they are "nonmotile" in comparison with the actively ameboid neutrophilic, basophilic, and eosinophilic *l.* **oxyphilic *l.*** SYN: eosinophilic *l.* **polymorphonuclear *l.***, **polynuclear *l.*** common term for granulocyte or granulocytic *l.* the term includes basophilic, eosinophilic, and neutrophilic *l.*, but is usually used especially with reference to the neutrophilic *l.* SYN: multinuclear *l.* **segmented *l.*** any mature polymorphonuclear *l.*, especially a neutrophilic *l.* **transitional *l.*** obsolete term for a monocyte. **Türk *l.*** SYN: Türk cell.

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